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Anti-leak valving system

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(73) Proprietor(s)
Regenerative
Environmental Equipment
Co Inc

(Incorporated in USA-
New Jersey)

520 Speedwell Avenue
Morris Plains
New Jersey 07950
United States of America

(72) Inventor(s)
Rodney L Pennington

(74) Agent and/or
Address for Service
Keith W Nash & Co
Pearl Assurance House
90-92 Regent Street
Cambridge CB2 1DP

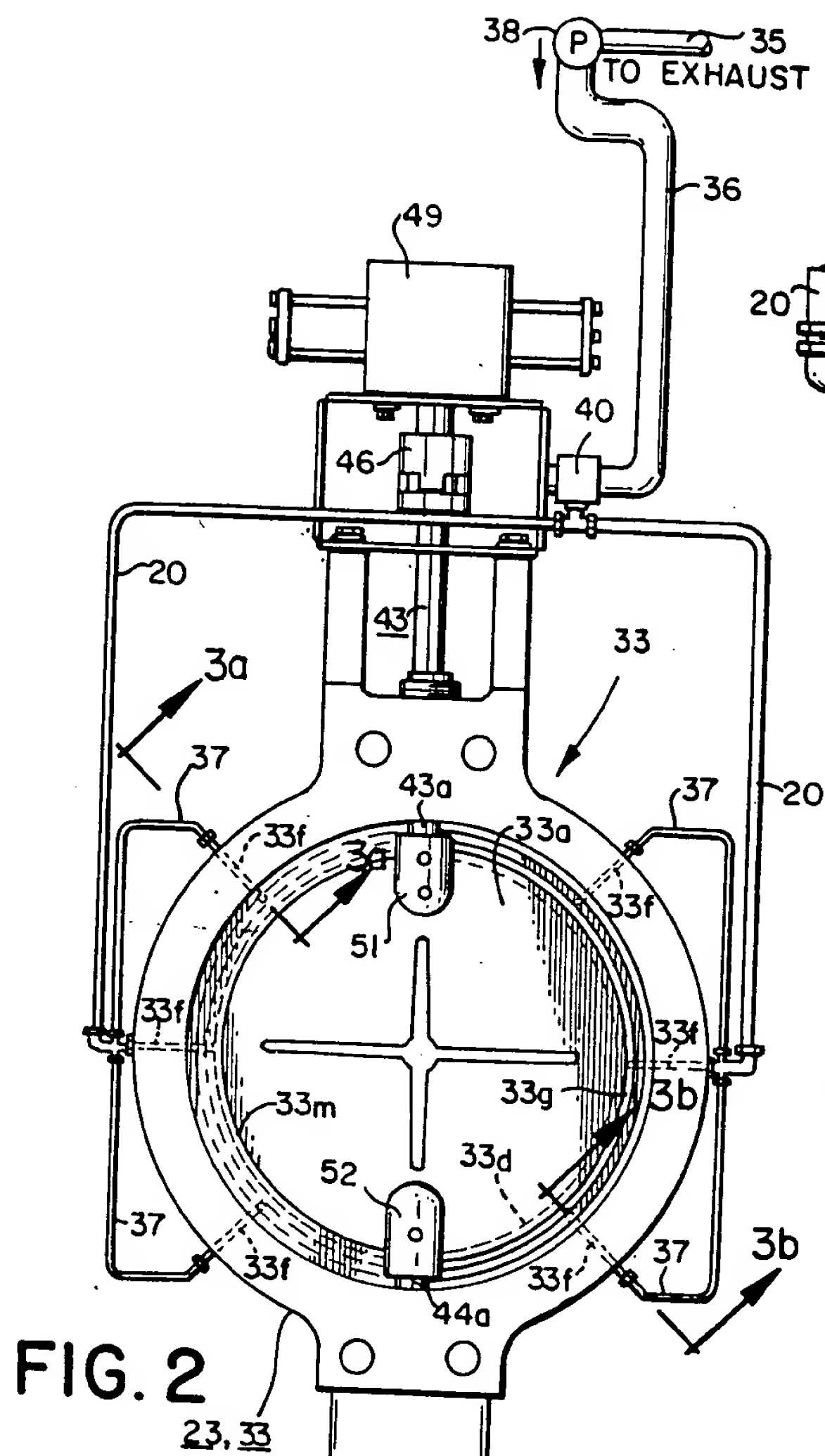


FIG. 2

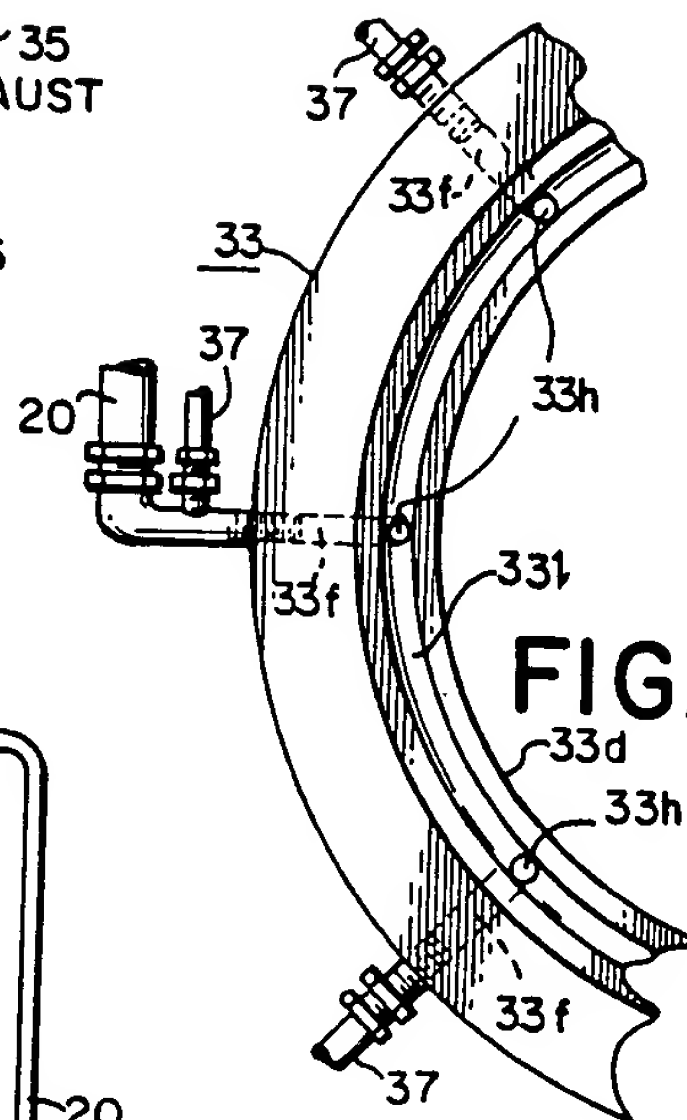


FIG. 4

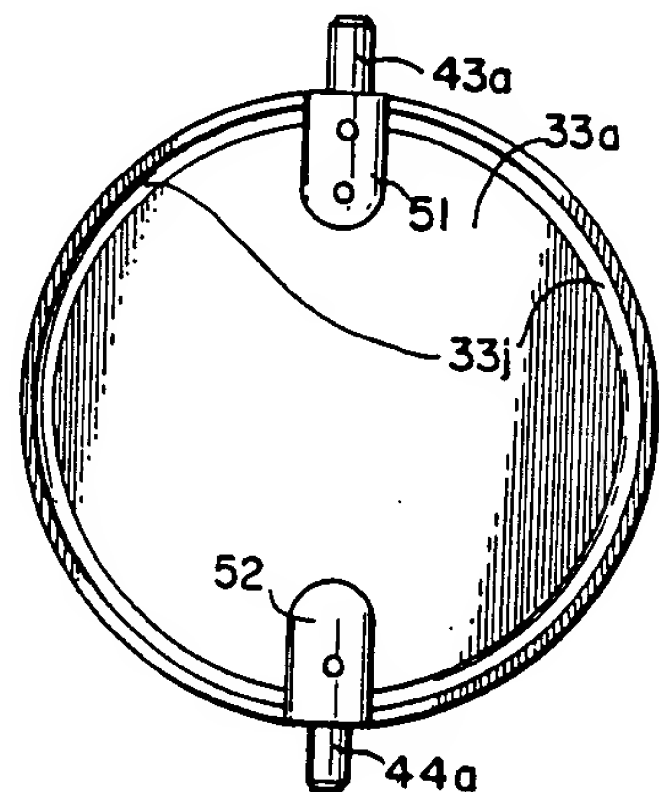


FIG. 5

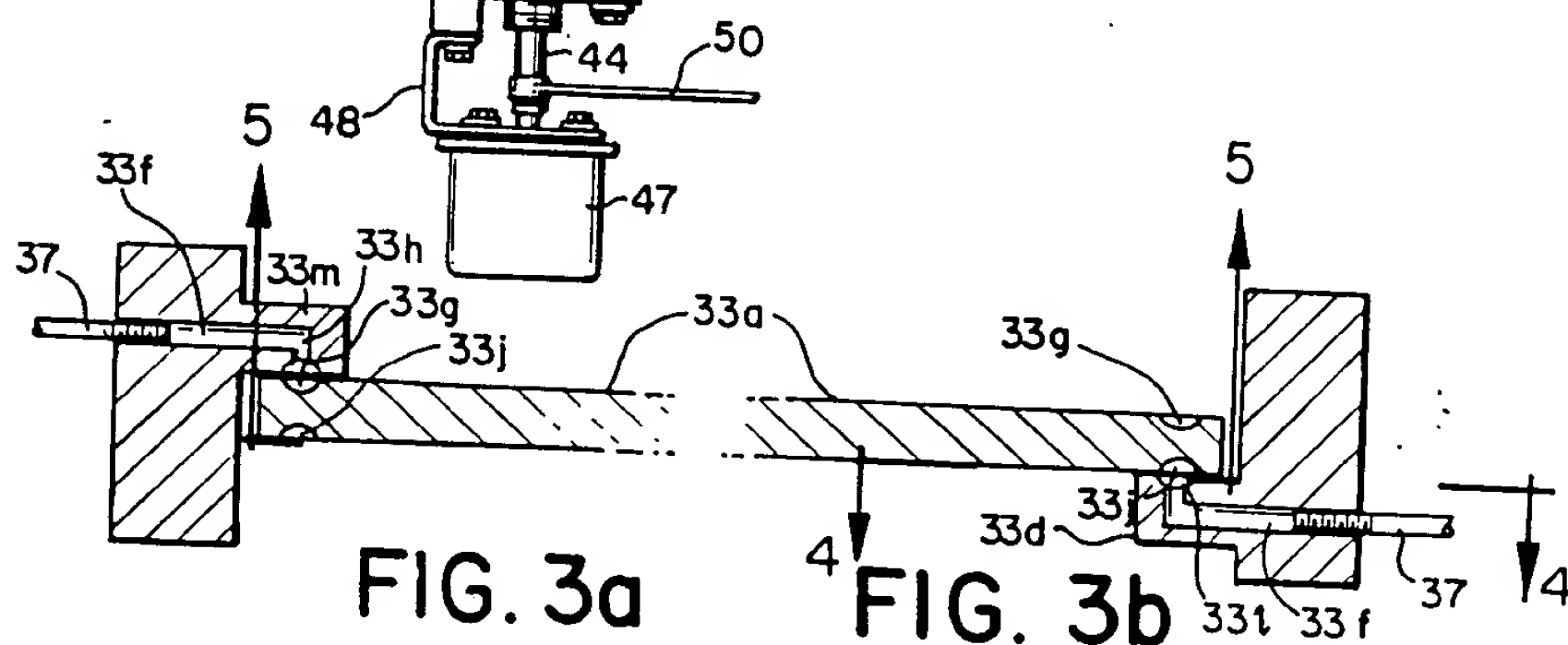


FIG. 3a

FIG. 3b

Claims

1. An anti-leak valve assembly for preventing leakage of fluid in a heat-regenerative incineration system comprising:
a valve fitted to an effluent-carrying conduit or other source of unpurified effluent;
- 5 the valve comprising a valve member and a valve seat, the valve member being relatively movable toward and away from the valve seat, corresponding to closed and open positions of said valve, respectively, said valve member and said seat together defining a sealing interface between interengaging
10 surfaces of said valve member and valve seat only when said valve member is seated on said valve seat in closed condition, and further comprising
a groove in at least one of the said interengaging surfaces of said valve member and valve seat, extending substantially
15 completely along the sealing interface, and
wherein said valve assembly also includes means for directing a fluid into the groove or grooves in the interengaging surfaces when said valve is in its closed condition, said fluid being at a higher pressure than said effluent.
20
2. A valve assembly as claimed in claim 1 wherein said valve member and said valve seat each contain a groove, said grooves being in substantially mating contact when said valve member is in its closed position.
- 25
3. A valve assembly as claimed in claim 2 wherein said means for directing fluid comprises a pump operationally connected between a predetermined number of ducts having openings adjacent said at least one groove and a source of
30 fluid, and control means connected thereto and responsive to a closed condition of said valve to energize said pump and force fluid into said at least one groove.

4. A valve assembly as claimed in claim 3 wherein said valve member is in the form of a disc.

5. A valve assembly as claimed in claim 4 wherein said valve disc has oppositely disposed shafts connected thereto, which shafts are pivotable about predetermined points on said valve assembly.

6. A valve assembly as claimed in claim 5 wherein said fluid is a gas.

7. A valve assembly as claimed in claim 6 wherein said gas is purified effluent.

8. An anti-leak valve assembly according to claim 1 wherein the valve seat comprises oppositely disposed, non-coplanar ledges, each containing a groove therein; the valve member comprises a disc of predetermined size and shape, having oppositely disposed shafts connected thereto and which shafts are pivotable about predetermined points on said valve assembly and having an upper and a lower peripheral groove in the upper and lower respective surfaces, whereby the disc is pivotable to turn from an open position to a closed and sealing position wherein the periphery of said disc contacts substantially all of said ledges and said grooves are placed in substantial communication with each other; and the fluid directing means comprises a pump operatively connected between a source of fluid and a predetermined number of ducts having openings adjacent said grooves; and control means connected to said pump and responsive to a closed condition of said disc to energize said pump and force the fluid into said grooves.

9. An incineration system for gaseous effluents or the like comprising:

(a) at least one heat-exchange section for conveying effluent;

(b) a high temperature combustion chamber in communication with said section;

5 (c) at least one duct means in communication with selected ones of said sections for conveying effluent;

(d) at least one anti-leak valve assembly in said duct means, said valve assembly comprising:

10 a valve fitted to a fluid-carrying conduit or other source of unpurified effluent;

the valve comprising a valve member and a valve seat, the valve member being movable toward and away from the valve seat, corresponding to closed and open positions of said valve, respectively, said valve member and said valve seat together defining a sealing interface between interengaging surfaces of said valve member and valve seat only when said valve member is seated on said valve seat in closed condition, and further comprising

15 a groove in at least one of the said interengaging surfaces of said valve member and valve seat, extending substantially completely along the sealing interface, and

20 wherein said valve assembly also includes means for directing a fluid into the groove or grooves in the interengaging surfaces when said valve is in its closed condition, said fluid being at a higher pressure than said effluent in said duct means.

10. A system as claimed in claim 9 wherein said means for directing fluid comprises a pump operatively connected
30 between a predetermined number of ducts having openings adjacent said at least one groove and a source of fluid, and control means connected thereto and responsive to a closed condition of said valve member to energize said pump and force fluid into said at least one groove.

35 11. A system as claimed in claim 10 wherein said valve member is in the form of a disc.

12. A system as claimed in claim 11 wherein said valve disc has oppositely disposed shafts connected thereto and which shafts are pivotable about predetermined points on said valve assembly.

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13. A system as claimed in claim 12 wherein said fluid is a gas.

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14. A system as claimed in claim 12 wherein said gas is purified effluent.

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15. A valve assembly substantially as herein described with reference to, and as shown in, the accompanying drawings.

16. An incineration system substantially as herein described with reference to, and as shown in, the accompanying drawings.
